

AMENDMENTS TO THE CLAIMS

For the convenience of the Examiner, all claims have been presented whether or not an amendment has been made. The claims have been amended as follows:

1. **(Currently Amended)** A method for tuning a transconductor, comprising:
receiving a digital value;
determining a bit value for a selected bit of the digital value;
selecting a tuning range for a transconductor based on the bit value; and
tuning the transconductor within the selected range based on any remaining bits in the digital value by:

selecting an additional bit of the digital value; and
selecting a subrange within the range based on the value of the additional
bit.

2. **(Original)** The method of Claim 1, wherein selecting the tuning range comprises selecting a resistor from a plurality of resistors.

3. **(Original)** The method of Claim 1, wherein tuning the transconductor comprises:

converting the remaining bits into an analog signal; and
tuning the transconductor based on the analog signal.

4. **(Cancelled)**

5. **(Original)** The method of Claim 1, wherein:
the transconductor comprises a first transconductor and a second transconductor;
selecting the tuning range comprises selecting a gain for the first transconductor and a gain range for the second transconductor; and

tuning the transconductor comprises:

producing an output current of the transconductor using an output current of the first transconductor and an output current of the second transconductor; and

tuning a gain of the second transconductor within the gain range based on the remaining bits of the digital value.

6. **(Original)** The method of Claim 1, wherein the transconductor is used to form a selected one of a filter, amplifier, mixer, integrator, or charge pump.

7. **(Original)** A transconductor circuit, comprising:
a digital-to-analog module operable to receive a digital value and to determine a bit value for a selected bit of the digital value;
a digital control module operable to select a tuning range for a transconductor based on the bit value; and
an analog control module operable to tune the transconductor within the selected range based on any remaining bits in the digital value;

wherein:

the digital-to-analog module is further operable to select an additional bit of the digital value; and

the digital control module is further operable to select a subrange within the range based on the value of the additional bit.

8. **(Original)** The circuit of Claim 7, wherein the digital control module is further operable to select the tuning range by selecting a resistor from a plurality of resistors.

9. **(Original)** The circuit of Claim 7, wherein:
the digital-to-analog module is further operable to convert the remaining bits into an analog signal; and
the analog control module is further operable to tune the transconductor based on the analog signal.

10. **(Cancelled)**

11. **(Original)** The circuit of Claim 7, wherein:
the transconductor comprises a first transconductor and a second transconductor, each transconductor producing a respective output current, wherein an output current of the transconductor is produced using the output currents of the first and second transconductors;
the digital control module is further operable to select the tuning range by selecting a gain for the first transconductor and a gain range for the second transconductor;
the analog control module is further operable to tune a gain of the second transconductor within the gain range based on the remaining bits of the digital value.

12. **(Original)** The circuit of Claim 7, wherein the transconductor is used to form a selected one of a filter, amplifier, mixer, integrator, or charge pump.

13. **(Original)** A circuit, comprising:
- a first transconductor;
 - a second transconductor coupled to the first transconductor such that the first and second transconductors are operable to produce a combined output current from respective output currents of the first and second transconductors;
 - a digital-to-analog module operable to:
 - receive a digital value;
 - extract one or more bits from the digital value; and
 - convert the remaining bits of the digital value into an analog signal;
 - a digital control module operable to:
 - receive the one or more bits as a digital signal; and
 - select a gain for the first transconductor and a gain range for the second transconductor based on the digital signal; and
 - an analog control module operable to:
 - receive the analog signal; and
 - tune a gain of the second transconductor within the gain range based on the analog signal.
14. **(Original)** The circuit of Claim 13, wherein the digital control module selects a gain for the first transconductor and a gain range for the second transconductor at least in part based on a selected bit of the digital signal.
15. **(Original)** The circuit of Claim 13, wherein the digital control module selects the gain of the first transconductor and the gain range of the second transconductor by selecting one of a plurality of resistors.
16. **(Original)** The circuit of Claim 13, wherein the circuit is used to form a selected one of a filter, amplifier, mixer, integrator, or charge pump.

17. **(Original)** Software embodied in a computer readable medium and when executed operable to perform ~~the steps of~~:

receiving a digital value;

determining a bit value for a selected bit of the digital value;

selecting a tuning range for a transconductor based on the bit value; and

tuning the transconductor within the selected range based on any remaining bits in the digital value by:

selecting an additional bit of the digital value; and

selecting a subrange within the range based on the value of the additional

bit.

18. **(Original)** The software of Claim 17, wherein selecting the tuning range comprises selecting a resistor from a plurality of resistors.

19. **(Original)** The software of Claim 17, wherein tuning the transconductor comprises:

converting the remaining bits into an analog signal; and

tuning the transconductor based on the analog signal.

20. **(Cancelled)**

21. **(Original)** The software of Claim 17, wherein:
the transconductor comprises a first transconductor and a second transconductor;
selecting the tuning range comprises selecting a gain for the first transconductor and a gain range for the second transconductor; and

tuning the transconductor comprises:

producing an output current of the transconductor using an output current of the first transconductor and an output current of the second transconductor; and

tuning a gain of the second transconductor within the gain range based on the remaining bits of the digital value.

22. **(Original)** The software of Claim 17, wherein the transconductor is used to form a selected one of a filter, amplifier, mixer, integrator, or charge pump.

23. **(Original)** A system, comprising:
means for receiving a digital value;
means for determining a bit value for a selected bit of the digital value;
means for selecting a tuning range for a transconductor based on the bit value; and
means for tuning the transconductor within the selected range based on any remaining
bits in the digital value;

wherein:

**the means for determining further determines an additional bit of the
digital value; and**

**the means for selecting further selects a subrange within the range based
on the value of the additional bit.**